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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/924,826

08/08/2001

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Hiroe 98-1488-D

3513

23413 7590 03/31/2008

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EXAMINER

PADGETT, MARIANNE L

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

03/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/924,826	Applicant(s) OHIRA ET AL.	
	Examiner MARIANNE L. PADGETT	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6, 8-12, 14, 17-22, 24-31 and 33-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 8-12, 14, 17-22, 24-31, 33-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1792

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/30/2008 has been entered.

In applicants' Remarks of the 1/30/2008 response, it is noted that they cited support by reference to the paragraph number in the published application, however in the future is requested that they properly cite support by indicating the p. &, where appropriate, lines on which the support resides in the actual application, so had as to have the location of the support properly of record with respect to the application file.

2. Claims 1-3, 6, 8-12, 14, 17-22, 24-31 & 33-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

First, applicants have cited Okuda et al. (5,885,521) at col. 3, lines 11-16, as providing a prior art definition of "unvulcanized", and the examiner notes that the disclosure therein defines "unvulcanized rubber... including semi-unvulcanized rubber which has been partially vulcanized (partially crosslinked). For example, it refers to those in which the degree of partial crosslinking is 50 % or less, and more particularly 20 % or less.". Note that this "definition" only provides exemplary, hence not necessarily complete ranges of what is considered unvulcanized **rubber**, such that only those values clearly defined are definite as "unvulcanized". The following paragraph in Okuda et al. further states "There is no particular limit on the average molecular weight of the unvulcanized rubber. However, about 100,000 to 100,000,000 is preferred, and 200,000 to 700,000 is more preferred.", which appears to indicate average

Art Unit: 1792

molecular weights that may be considered unvulcanized. Okuda et al. then go on to discuss vulcanizing agents \equiv cross-linking agents, "which may... include, for example, sulfur, peroxides, oxides of metals... and the azo-based compounds discussed hereinbelow..." (col. 3, lines 21-26), with the following disclosure of examples of vulcanization accelerators in col. 3, lines 30-39 including: N-oxydiethylene-2-benzothiazolyl sulfenamide (OBS); N-cyclohexyl-2-benzothiazolyl sulfenamide (CBS); 2-mercaptobenzothiazole (MBT); which all appear to be referred to "azo-based compounds" for vulcanization & overlap with applicants' claimed "moment activators". It is further noted that when discussing vulcanization on col. 13, lines 1-20, Okada et al. discussed vulcanization of the viscoelastic layer occurring during a thermal curing process that may employ preferred temperatures from 100-150°C for 3-30 minutes.

Applicants are alleging that their process is directed to the employed "base material" being "unvulcanized", hence based on the definite part of the definition applicants have provided, they need to provide evidence that their "base material" is only partially crosslinked, with the degree of crosslinking being 50% or less. Note that merely having no discussion concerning vulcanizing is not sufficient, as there is also no discussion of unvulcanized, or the like. In their 1/30/2008 remarks, applicants state that nowhere does their specification teach a material that comprises vulcanizing agents, but it is not evident that their azo-based compounds equivalent to those taught by Okada et al. do not qualify as vulcanizing agents.

Second, it is noted that applicants' indicated paragraph [568], is found on lines 3-7 of p. 79 of the application's specification, and applicants cite the example as evidence, stating that it teaches "that the base material is blended with the moment activator and formed into a sheet using a kneading roll set at 160°C. The contact time in a kneading roll at an elevated temperature is too short to cause the material to be vulcanized" (first p. of remarks, p. 7 of the 1/30/2008 response). Review of the cited embodiment on p. 79, lines 3-7, found no disclosure of any time employed for kneading, nor any degree of crosslinking

Art Unit: 1792

discussed. Given the evidence cited in applicants' specification, as well as that cited in Okada et al., applicants' allegation that the base material employed in their taught process is necessarily & inherently unvulcanized, does not appear to be properly supported, hence lacking clear evidence, such as that their resultant mixtures of the embodiments which have been heated at the exemplary 160°C (time unknown) have 50% or less crosslinking.

The examiner further takes note of definitions of "vulcanization" as found in Hawley's Condensed Chemical Dictionary (p. 1221-1222), which discusses vulcanization as a crosslinking process for rubber, which usually employs the application of heat, as well as materials such as sulfur or peroxides, or metallic oxides, or chlorinated quinones or **nitrobenzenes**, with discussion of factors affecting vulcanization including percentage of agents or accelerators used, temperature & time, noting times can be as short as 3 minutes at temperatures as high as 150°C. Hackh's Chemical Dictionary (p. 901) provides an older reference defining vulcanization & vulcanizing agent that overlap with Hawley's definition. Given that all of applicants "moment activators" may be considered nitrobenzene compounds, which also contain sulfur, and applicants' cited processing temperature is clearly hot enough to cause vulcanization, with the claimed concentrations up to five times greater by weight than the base material, lacking a teaching on the amount of time during which heating occurs during the processing, it is not clear that vulcanization is not occurring, i.e. that the composition is unvulcanized as defined.

For these reasons, the specification is considered lacking in clear support for the claim of "the base material is unvulcanized" (claim 1) or "the acrylic rubber is unvulcanized" (claim 36), hence unless shown otherwise, these claims are considered to encompass **New Matter**.

3. The disclosure is objected to because of the following informalities: on review of the application file, the examiner did not find any update of the continuing data information, hence SN 09/091,563, which has matured into PN 6,645,586, needs to be properly indicated.

Art Unit: 1792

Furthermore, upon review is noted that there is **no claim of priority** to the PCT application PCT/JP 97/01124 **in this application file**, hence the claim of being a divisional of 09/091,563 only provides the actual filing date of that document, i.e. 3/22/99, as the effect of filing date, such that all the many listed for an priority documents, are **all more than one year before the current effective filing date** of the only claimed parent. Applicant's arguments presented in the 11/26/2003 remarks, concerning claims to priority to the PCT document are noted, but as the examiner can find no paper in the present application file claiming priority to the intervening PCT document, these arguments are incorrect until such time as applicants perfect their priority in this application, with an actual claim to priority. Even though a case is a continuation or a divisional, all priority documents to be considered in that case, must be claimed in that case to be properly part of the chain of priority documents.

Appropriate correction is required.

Claim 1 is objected to because of the following informalities: in claim 1, line 4 & 7 "sulfonamides" appears to be a misspelling of -- sulfenamide --, which is found on lines 6 & 8, plus of the two spellings, the latter is the only one found in the chemical dictionaries, thus suggesting that the first spelling may be a misspelling. Appropriate correction is required.

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: original claim 9 reads "the filler **comprises** mica scales, glass pieces, carbon fibers, calcium carbonate, barite, **and** precipitated barium sulfate" (emphasis added), which is opened language and requires each and every listed filler material to be present in the composition at the same time. It is noted that on p. 50, lines 24-27, or p. 55, lines 21-25, or p. 59, lines 26-30, or p. 69, lines 21-25, or p. 73, lines 22-24, these same filler materials are taught using the language "such as... or", and while "such as" maybe could considered equivalent to -- comprises --, this disclosure does not appear to properly suggest that all of the filler should be used at once. The examiner questions whether applicants actually intended to

Art Unit: 1792

claimed that all of them were used at once, along with any other possible fillers one might wish to throw in. If applicants should wish to amend this claim to employ proper Markush group terminology, it would be supported by the specification.

5. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Use of relative terms that lack clear metes and bounds is vague and indefinite. In claim 20, see "corrosion inhibitor", where this claimed limitation lacks context, such that it is unknown what environments present that may be causing any corrosion, to what material (i.e. what material is being protected from corrosion is not specified), such that it cannot be determined what compound or composition may constitute a "corrosion inhibitor", thus what scope of compounds may be employed for the claimed purpose. Review of the specification found this term used in three places (p. 5, line 12; p. 25, line 28; & p. 46, line 12; or in PGPub paragraphs [0028], [0196] & [0338]), however in each case the term was merely used, not defined, no examples were given and the term again lacked sufficient context to determine the scope of what materials might be being considered as a "corrosion inhibitor".

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of

Art Unit: 1792

each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamijima et al. (5,439,512), as set forth in the Examiner's Answer mailed 6/2/2006, on p.s 4-5.

This rejection over claim 36 was affirmed by the Board of Appeals (p.s 8-9 & 14) & in applicants' remarks of 1/30/2008, applicants have made no arguments as to why the designation of "the acrylic rubber is unvulcanized" would remove this rejection.

The examiner particularly notes that in the polymerization discussions found on col. 7-8, that it is indicated that "The number average molecular weight of the resultant polymer (A) is not particularly

Art Unit: 1792

limited, and is preferably 500 to 200,000, more preferably 1000 to 50,000 from the viewpoint of various properties of coating resins. The number average molecular weight is obtained by measuring with gel permeation chromatography, followed by calculation using standard polystyrene calibration curve." (Col. 8, lines 7-14). Note that according to Okuda et al., which applicants cite for defining "unvulcanized", on col. 3, lines 11-20, the number average molecular weights taught by Kamijima et al. are consistent with the lower values of average molecular weight disclosed therein as appropriate for unvulcanized rubber. Also note production examples on col. 11-13 also give average molecular weights of resultant polymers consistent with unvulcanized. The coating test on col. 19 indicates that the coatings are formed & allowed to dry naturally, hence no further heating, thus vulcanization, would be expected with their application. Therefore, the acrylic option taught in Kamijima et al., which is considered to be consistent with the claimed acrylic rubber, and may be mixed with DCHBSA to form a coating varnish composition, applied as an antifouling varnish coating, is considered to continue to read on independent claim 36.

8. Claims 1-3, 6, 8-12, 14, 17-22, 24-31 & 33-36 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohira et al. ((WO 97/42844) with EP 0897675 A1 providing an English translation thereof).

Note that this rejection may be removed by simply perfecting the priority, by actually claiming priority to the parent (SN 09/091,563 = PN 6,645,586 B2) case's PCT priority document, which application corresponds to the above PCT publication, which is more than one year before the parent's filing date & which until such time as it is claimed in the present case, so as to in effect activate the 371 claim with respect to this divisional case, is prior art.

Note if one assumes for reasons asserted by applicants that the specification requires the base material to be "unvulcanized", the specification of the published PCT document must also be considered completely anticipatory. Alternately, since the same materials are being employed to create the same compositions by the same means, to be employed in the same enduses, thus the same applications of

Art Unit: 1792

energies, the materials so created would be considered to encompass like results with respect to polymerization or crosslinking or vulcanization, hence it would have been obvious to one of ordinary skill in the art to employ materials with suitable degrees of cross-linking in order to be effective in the claimed uses.

9. Claims 1-3, 6, 8-12, 14, 17-22, 24-31 & 33-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-37 or claims 1-62 of U.S. Patent No. 6,635,372 B2 or 6,645,586 B2, respectively. Although the conflicting claims are not identical, they are not patentably distinct from each other, because the present claims are directed to application of energy (generic, sound, impact, electromagnetic, piezoelectric = electric converted to mechanical) for which the compositions & products of the patents were designed to be exposed to & required to be capable of, in order to produce effects that are inherent in the composition/structure, i.e. use of the composition that are in the form of a sheet or fiber or combination thereof, including compositions as presently claimed & also in the patents, so as to expose them to energies which they would expected be exposed to in their normal use, so as to create energy conversions the compositions were designed to perform, is an obvious variation on the claimed composition/structures, as being directed to their intended use. Note with respect to the presently claimed fiber option, there is no structural difference for this option with respect to the patented claims, which also contain an option directed to the composition used in the form of fibers ((586) claims 45-59; or (327) claims 1-17, 28, 30-31). The present independent claim 1 & its dependents differ from the patented claims when the option of the structure being a "sheet" is employed, by specifying that the sheet has a specific thickness of 1 mm or greater, however as structures claimed in the patents, such as foam sheets ((586) claims 33-44; or (327) claims 30 & 32-33), or use in structures, such as shoe soles ((586) claims 62), would have been expected to have thicknesses within the range claimed, as foaming a sheet or a layer in a sheet generally would have been expected to

Art Unit: 1792

produce such thicknesses, and similarly, structures employed in shoe soles typically have dimensions as claimed, hence such dimensions would have been expected by one of ordinary skill.

It is noted that while the present case is claimed as divisional of the parent case, as indicated by the parent cases PGPub (2002/0160131 A1), all the claims therein were directed to products or compositions, not the use of those compositions/products in their intended use of energy conversion, thus no restriction could've been present. Also note that copending patent (6,635,327)'s PGPub US 2002/0037381 A1 is similarly directed to compositions & products thereof.

10. The publication to Aoki et al. (2004/0157964 A1) is cited as of interest to the state of the art, but is noted to not be prior art. The Japanese patent JP 04-117463 is of interest as its English abstract indicates it is directed to intended energy conversion uses & has a composite of materials that has the potential of being as claimed, however the abstract has insufficient information, so a translation has been ordered, but has not yet been received.

11. Applicant's arguments filed 1/30/2008 & discussed above have been fully considered but they are not persuasive.

As Okuda et al. is requiring vulcanization to take place, applicants' amendment of the claims to require the base material to be unvulcanized removes the rejections based on Okuda et al. (521), as applied in the examiner's answer of 6/2/2006, which were affirmed by the Board, however note, if applicants cannot show support to overcome the above 112, first, New Matter rejection, and removes the "unvulcanized" requirement, without other distinguishing amendments, the rejections over Okuda et al. will have to be reinstated.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

Art Unit: 1792

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marianne L. Padgett/
Primary Examiner, Art Unit 1792

MLP/dictation software

3/23-24/2008